REMARKS

Claim 26 is objected to because of the use of "whereon" instead of "wherein," and claim 22 is rejected under 35 U.S.C. § 112, second paragraph, as lacking antecedent basis for "other Hindi characters."

The above objection and rejection are respectfully disagreed with, and are traversed below.

While not admitting that the above claims are in any way vague or indefinite, these claims have been further clarified to improve upon the wording. In particular, "whereon" has been changed to "wherein" in claim 26. Similarly, "other" has been deleted from claim 22, as well as from claim 13. Accordingly, the Examiner's objection and rejection should be reconsidered and withdrawn. It is noted, however, that by amending these claims it is not admitted that the claims were unclear or that these claims were properly objected to or rejected. Thus, since the amendments merely clarify the wording of the claims, these amendments were also not made for a reason related to patentability and the full range of equivalents should remain in tact.

Claims 1 and 16 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ouyang (U.S. 6,674,372). Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ouyang in view of the Indian Script Code for Information Interchange (ISCII standard). Similarly, claims 4-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ouyang and ISCII standard in view of Kato et al. (U.S. 6,356,258), Tabe et al. (U.S. 5,852,783) and Jurion et al. (U.S. 6,631,501). Claims 17-21 and 23-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Oyang and ISCII standard in view of Kato et al. and Jurion et al. (U.S. 6,631,501). Lastly, claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ouyang and Tabe et al. in view of Jurion et al.

All of the above rejections are respectfully disagreed with, and are traversed below.

Independent claim 1 is directed to a method for operating a device having a keypad comprised of a plurality of keys, for inputting characters from a set of characters used for

constructing words in a predetermined language. This method has been clarified to further comprise:

> "mapping a first subset of the set of characters to at least one predetermined key; wherein mapping said first subset of the set of characters to at least one predetermined key comprises mapping independent vowels to a first plurality of numeric keys;
>
> mapping a second subset of the set of characters to the same one of said at least one predetermined key; wherein mapping said second subset of the set of characters to at least one predetermined key comprises mapping dependent vowels to the same first plurality of numeric keys;
>
> mapping a third subset of the set of characters to at least one other key; and
>
> when activating said at least one predetermined key, automatically selecting for inserting into a character buffer a character from said first subset of the set of characters or from said second subset of the set of characters as a function of a content of the character buffer at a current insertion point into the character buffer;
>
> where activating one of said first plurality of numeric keys selects one of an independent vowel or a dependent vowel depending on the character preceding the current character insertion point in the character buffer, wherein if the character preceding the current character insertion point is a consonant a dependent vowel is selected, otherwise an independent vowel is selected, wherein the dependent vowel is changed to an independent vowel by activating in sequence a context shift key and the key associated with a dependent vowel, whereby the independent vowel is selected without regard for the character that precedes the current insertion point in the character buffer."

Claims 2, 3, 5, 7 and 10-16 depend directly or indirectly from claim 1. Claims 4, 6 and 8-9 have been canceled in view of the amendment to claim 1.

Independent claim 17 is directed to a mobile station comprising, in part, a data processor coupled to a memory for executing a stored program and also coupled to a display and to a numeric keypad, the stored program comprising a Hindi character editor function. This claim has also been clarified to recite:

> "wherein the dependent vowel is changed to an independent vowel by activating in sequence a context shift key and the numeric key associated with a dependent vowel, whereby the independent vowel is selected without regard for the character that precedes the insertion point."

Claims 19-26 depend directly or indirectly from independent claim 17. Claim 18 has been canceled in view of the amendment to claim 17.

Ouyang discloses a method for inputting Chinese characters using numeric keys. Ouyang does not disclose a context shift key, as claimed by Applicant. In particular, Ouyang does not disclose nor suggest a dependent vowel changed to an independent vowel by activating in sequence a context shift key and the key associated with a dependent vowel, whereby the independent vowel is selected without regard for the character that precedes the current insertion point. Accordingly, for at least this reason, the Examiner's anticipation rejection of claims 1 and 16 should be reconsidered and withdrawn.

The addition of ISCII standard, Kato et al., Jurion et al. and Tabe et al., alone or in any combination neither discloses nor suggests the present claims for at least the following reasons.

Ouyang has been described above.

The ISCII code standard specifies a 7-bit code table which can be used in 7 or 8-bit ISO compatible environment. It allows Indian and English script alphabets to be used simultaneously. The INSCRIPT keyboard of the ISCII code standard requires two distinct keys for each pair of independent and dependent vowels. In contrast, according to Applicant, only one key is required for such pair. The distinction between independent and dependent vowels may either be made automatically (intelligence based on the current editing context) or explicitly by using a predetermined context shift key. Moreover, the INSCRIPT approach requires the explicit use of virama (vowel killer) to produce consonant clusters, whereas according to Applicant, the use of virama is hidden from user and consonants may be combined into clusters by using the context shift key.

The Kato et al. reference is directed to a key pad, wherein five vowel keys are set independently to A, E, I, O, U and each of the consonant keys have a plurality of characters expressing the consonants (Col. 2, lines 35-46). Jurion et al. disclose a method for

determining whether a typed sequence of characters is a valid sequence according to the character sequence and syntactical rules of the language being typed (Col. 1, lines 15-24). Lastly, the Tabe et al. reference discloses a multi-functional information key (INFO key) displaying an appropriate message or data to meet the user's needs when the user presses the INFO key (Col. 1, lines 54-61).

None of the above references, whether viewed alone or in combination, disclose Applicant's claimed method or mobile station including the advantageous context shift key. For example, the Examiner's attention is respectfully directed to the dual function of Applicant's context shift key. Advantageously, it 1) allows vowel keys (e.g. key 2, key 3) to produce independent vowels and also 2) allows the consonant preceding the insertion point to join the following consonant as a consonant cluster. It is further respectfully pointed out that the function of Applicant's claimed context shift key is not the same as any key specified in the INSCRIPT keyboard (annex D of ISCII standard) as the banks of dependent and independent vowels are not symmetric. In particular, there is no need for a corresponding dependent vowel sign in the ISCII standard as the consonants in all Indian scripts contain an inherent vowel. Thus, the bank of dependent vowels contains at least one character less than the independent ones. Moreover, in some Indian languages other than Hindi the Unicode standard contains allocations to independent vowels without any corresponding dependent vowels (especially Sanskrit letters VOCALIC RR, VOCALIC LL).

Moreover, with respect to 2) above, the function of Applicant's shift key is also not the same as or suggested by the INSCRIPT keyboard of the ISCII standard. For example, in accordance with aspects of the present invention, when a press of the context shift key is followed by another consonant, the newly added consonant is joined with the one that originally preceded the insertion point as a consonant cluster. In practical terms, a press of the context shift key causes the editor to insert a virama character, for example, between the two consonants. That is, if the last character of the editing buffer preceding the insertion point was originally <C1>, the user presses the context shift key and enters consonant C2. The editing buffer shall contain a sequence of <C1, VIRAMA, C2>. Advantageously, the user gets that VIRAMA "free." That is, the SW inserts the VIRAMA for the user, without any explicit command to do so. In the case of the consonant cluster (see e.g. claim 10), the

use of the context shift key causes the SW to add an extra character to the editing buffer, while in the case of vowels (see e.g. independent claims 1, 17) the SW may add one character.

Applicant further points out that design of an input method so that the vowel keys (e.g. keys 2 and 3) produce dependent vowels when the insertion point is preceded by consonant and independent vowels in all other cases has further advantages. For example, independent vowels are valid only after a consonant. As stated above, the consonants in Indian scripts contain an inherent vowel sound. In order to override the inherent vowel sound, a combining vowel sign is applied. The combining vowel signs (dependent vowels) cannot be used for any other purpose.

In most Indian languages, independent vowels are found only at the beginning of words and seldom or never occur in the middle of the words. A sample of 46,618 character pairs was taken and out of these samples sequences of <consonant, dependent vowel> amounted to 22.25% (10,374 occurrences out of 46,618). Sequences of <consonant, independent vowel> amounted to 0.13% (61 occurrences out of 46,618). In view of sample data taken, when the insertion point is preceded by a consonant, the users should expect the vowel keys to produce dependent vowels instead of independent ones. As the above sample shows, there is a need for a device to override the default editing behavior (vowel keys produce dependent vowels when the insertion point is preceded by consonant). Applicant's context shift key satisfies this outstanding need. In the subject case, "override the default behavior" may be offered. Normally, the SW produces a matra when the insertion point follows a consonant. When the user notices that the vowel key produces a dependent vowel where an independent one was required, they can override the default behavior by pressing first the context shift key (e.g. * key) before entering the vowel.

There are further advantages to designing the input method to join consonants with Applicant's context shift key. Applicant first points out that with the exception of Tamil, the virama that is encoded in the text is hardly ever visible. Rather, the absence of the inherent vowel is communicated to the reader by means of consonant shape changes. In particular, consonants may take half-forms, subscript forms, or they may be displayed bearing little or

no graphical similarity to the constituent consonants. In Tamil, however, the virama is always explicitly displayed (with only two major exceptions, KSSA and SRI). For reference, a matrix of Devangari consonants joined into a consonant cluster of form <C1, VIRMA, C2> using Windows 2000 and font Arial Unicode MS was produced. Virama was visible in 20% of the clusters (35 out of 2025). In the sample taken from UI translations, there are 2171 consonant clusters in 560 texts. Out of these 2171 clusters, only one is displayed with explicit virama (0.046% of the clusters). Since the virama is hardly ever displayed in a consonant cluster, it is not obvious to the users that they should enter a virama between two consonants to join them. To overcome this difficulty, in accordance with aspects of the present invention, one may use "overriding the default behavior." Normally, when a user presses a consonant key, the SW produces a separate (live) consonant. When the user notices that the consonant keys produce a separate consonant when the consonants were suppose to join, they can override the default behavior by, for example, pressing first the context shift key (e.g. * key) before entering the second consonant. Moreover, the two different afore-described functions of this key can be explained to the user with the phrase "if the SW does not provide you with the expected behavior, try pressing * key first." Furthermore, the use of the * key hides the technical details of using a virama, and the classifications such as dependent/independent vowel.

As such, it is further respectfully asserted that combining the ISCII code standard with any of the afore-described references does not disclose nor even suggest Applicant's presently claimed method and mobile station, including the dual function context shift key.

In view of the above remarks and clarifying amendments, the subject application is believed to be in condition for immediate allowance. Accordingly, the Examiner is respectfully requested to remove the outstanding objection and rejections, and to allow all of the pending claims as currently presented for examination.

Respectfully submitted:

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